

What is claimed:

1 1. A wireless access network for providing radio
2 communication of data therein, said wireless access network
3 comprising:

4 a first-tier mesh formed of a plurality of first-tier
5 nodes, each of the first-tier nodes of the plurality of first-
6 tier nodes capable of communicating data with at least selected
7 others of the first-tier nodes, at least one of the first-tier
8 nodes forming a first-tier sink node;

9 at least a second-tier mesh formed of a plurality of
10 second-tier nodes, each of the second-tier nodes of the plurality
11 of second-tier nodes capable of communicating data with at least
12 selected others of the second-tier nodes, at least one of the
13 second-tier nodes forming a second-tier sink node, the second-
14 tier sink node further capable of communicating with the first-
15 tier sink node of said first-tier mesh.

1 2. The wireless access network of claim 1 wherein the
2 first-tier nodes of said first-tier mesh are operable pursuant to
3 first-tier-mesh operational characteristics, and wherein the
4 second-tier nodes of said second-tier mesh are operational
5 pursuant to second-tier-mesh operation characteristics, the
6 first-tier-mesh operational characteristics and the second-tier-
7 mesh operation characteristics being, at least in some part,
8 dissimilar.

1 3. The wireless access network of claim 2 wherein the
2 first-tier-mesh operation characteristic comprise a first
3 frequency band within which communication of data is effectuated,
4 wherein the second-tier-mesh operation characteristics comprise a
5 second frequency bandwidth within which communication of data is
6 effectuated, the first frequency bandwidth and the second
7 frequency bandwidth having at least plurality nonoverlapping
8 portions.

1 4. The wireless access network of claim 1 wherein at least
2 one first-tier node of said first-tier mesh and at least one
3 second tier node of said second-tier mesh are co-located, the at
4 least one first-tier node co-located with the at least one
5 second-tier node capable of communicating with the at least
6 selected others of the first-tier-nodes and the at least one
7 second-tier node co-located with the at least one first-tier node
8 capable of communicating with the at least selected others of the
9 second-tier nodes.

1 5. The wireless access network of claim 1 wherein said
2 first-tier mesh comprises an ad-hoc mesh which exhibits an ad-hoc
3 configuration and an ad-hoc number of first-tier nodes.

1 6. The wireless access network of claim 5 wherein the
2 first-tier nodes comprises mobile nodes capable of movement
3 throughout a selected area.

1 7. The wireless access network of claim 5 wherein
2 communication of data is effectuated pursuant to NLOS (non line
3 of sight) communication techniques.

1 8. The wireless access network of claim 1 wherein said
2 second-tier mesh comprises a pre-configured mesh which exhibits a
3 fixed configuration and a fixed number of second-tier nodes.

1 9. The wireless access network of claim 8 wherein the
2 second-tier nodes are stationary.

1 10. The wireless access network of claim 9 wherein
2 communication of data is effectuated pursuant to LOS (line of
3 sigh) communication techniques.

1 11. The wireless access network of claim 1 further
2 comprising:

3 a third-tier mesh formed of a plurality of third-tier
4 nodes, each of the third-tier nodes of the plurality of third-
5 tier nodes capable of communicating data with at least selected
6 others of the third-tier nodes, at least one of the third-tier
7 nodes forming a third-tier sink node.

1 12. The wireless access network of claim 11 wherein the
2 first-tier nodes of said first-tier mesh are operable pursuant to
3 first-tier mesh operational characteristics wherein the second-
4 tier nodes of said second-tier mesh are operational pursuant to
5 second-tier-mesh operational characteristics, and wherein the
6 their-tier nodes of said third-tier mesh are operational pursuant
7 tot third-tier-mesh operational characteristics, the first-tier,
8 second-tier, and third-tier mesh operational characteristics,
9 respectively, being at least in some part dissim.

1 13. The wireless access network of claim 11 wherein said
2 their-tier mesh comprises a point-to-point mesh which exhibits a
3 fixed configuration and a fixed number of third-tier nodes.

1 14. The wireless access network of claim 13 wherein
2 communication of data between the their-tier nodes is effectuated
3 pursuant to LOS (line-of-sign) communication techniques.

1 15. The wireless access network of claim 1 wherein the at
2 least one of the first-tier nodes forming the first-tier sink
3 node comprises a first first-tier node forming a first first-tier
4 sink node and at least a second first-tier node forming a second
5 first-tier sink node, wherein the at least one of the second-tier
6 nodes forming the second-tier sink node comprises a first second-
7 tier node forming a first second-tier sink node and at least a
8 second, second-tier node forming a second second-tier sink node,
9 the first first-tier sink node capable of communicating with the
10 first second-tier sink node, the second first-tier sink node
11 capable of communicating with the second second-tier sink node,
12 and the first and second second-tier sink nodes, respectively,
13 capable of communicating therebetween.

1 16. The wireless access network of claim 15 further
2 comprising an other of the second-tier nodes of said second-tier
3 mesh positioned between the first second-tier sink node and the
4 second second-tier sink node, communications between the first
5 and second second-tier sink nodes effectuated by way of the other
6 of the second-tier nodes.

1 17. The wireless access network of claim 15 wherein data
2 communicated between the first-tier nodes of said first-tier mesh
3 is communicated at a first data rate, wherein data communicated
4 between the second tier nodes of said second-tier mesh is
5 communicated at a second data rate, the second data rate greater
6 than the first data rate such that data communicated between the
7 first and second first-tier sink nodes is communicated more
8 quickly by way of the first and second second-tier sink nodes
9 than by way of the first-tier nodes of said first-tier mesh.

1 18. A communications network comprising:
2 at least one sink node; and
3 at least one mesh network coupled to and built around
4 the sink node, wherein the mesh network is capable of determining
5 optimal routes within the network to and from the sink node.

1 19. The network of claim 18 wherein the mesh network
2 comprises a tiered mesh network.

1 20. A method for providing for communication in a method
2 for communicating data, and improvement of a method for forming a
3 wireless access network providing for communication therein, said
4 method comprising:

5 forming a first-tier mesh of a plurality of first-tier
6 nodes, each of the first-tier nodes capable of communicating data
7 with at least selected others of the first-tier nodes, at least
8 one of the first-tier nodes forming a first-tier sink node; and

9 forming a second-tier mesh of a plurality of second-
10 tier nodes, each of the second-tier nodes of the plurality of
11 second-tier nodes capable of communicating data with at least
12 selected others of the second-tier nodes, at least one of the
13 second tier nodes forming a second-tier sink node further capable
14 of communicating with the first-tier sink node of the first-tier
15 mesh formed during said operation of forming the second-tier
16 mesh.